

If sized yarn is examined through the microscope, it will be found to be smooth, compact, and straight, while the same thread unsized is rough and full of projecting fibres. It makes no difference what material is used for the sizing, it must comply with the following conditions: The agent must be capable of imparting to the thread the necessary firmness; it must not attack the colors, and in the final cleansing of the cloth it must be easy of removal; it must not have a disagreeable smell, which cannot afterward be removed readily. The agent most universally employed for the purpose is the leather gelatine, obtained by boiling the remnants of hides and skins of the tan yard.

A process used in Germany is described by the *Oesterreichs Wollen und Leinen Industrie* as follows. The boiling of size is a special occupation, and before the size can be used by the consumer, who received it as a jelly, it is to be mixed with water, according to its consistency. Glue is also used, and it can be converted into a jelly by boiling it with the leather wastage of kid glove factories. A composition which complies with every requirement is prepared with 500 grammes [17½ ozs.] of the best glue, 100 grammes [3½ ozs.] concentrated glycerin, and 9 liters [9½ quarts] water. The glue is steeped in cold water for more than 10 hours, after which the glycerin, previously dissolved in 1 liter [1 quart] boiling water, is added. The glue prepared in this manner is clean, free from lumps, and is readily washed out in rinsing and cleansing the cloth. The size must neither be used too hot nor too strong, for in sizing the yarn, if the temperature of the bath is too hot, that is, higher than has been established for practical work, the colors are apt to be injured. Again, if the size is too strong, the ends easily glue together, which in turn retards the weaving process; and if the size has a disagreeable odor, the washing process must be prolonged until the smell is removed.

Inferior qualities of size occasionally cause much trouble, for it is absolutely necessary to remove all traces of the size from the cloth, and this is very difficult to do sometimes without attacking the fabric. The warps are sized either by hand or by machines, and when the process is performed by hand, the warp is dipped into a large trough containing the size and is afterward passed between a pair of squeezing rolls, which press out a large part of the absorbed solution. The warp is then taken away, opened and dried, and when dry it is ready for beaming. In machine sizing, the warp beam is placed at once into the sizing machine, and, after passing over two or three rollers, the warp runs through the sizing bowl, between two squeezing rollers, whereby it is partly dried, and then over a large drum which has fans to blow heated air against the warp. When completely dry, the warp passes above a rotating brush to the beam and is now ready for weaving. Sizing warps by machine is much more expeditious than by hand, and the results are more satisfactory.

For THE CANADIAN JOURNAL OF FABRICS:

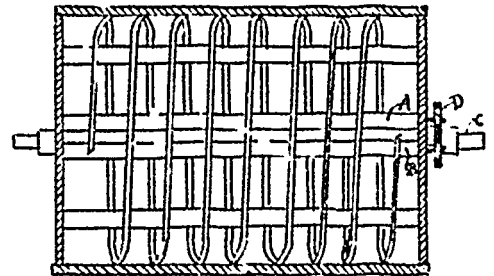
"WORKMAN TO SUPER."

BY G. D. RICE.

*An Extensible Circular Waste Duster.*—Various methods are employed to sift waste products and separate the fibre from dirt, flying and foreign substances. A new sort of an arrangement, which any mill mechanic can build, is described below. The peculiar advantage claimed for it is the ability of the operator to increase or retard at pleasure the travel of the matter to be sifted through the reel.

The waste is put in at the gear end, and is worked to the other end by the agency of the ribs that form the circle inside the cylinder. The skeleton of the reel, which is covered with wire netting, is formed by rings or ribs covered with a cloth, and whose ends are cut to a bevel and fastened upon two movable rods, *A* and *B*. These rods can be moved, the one toward the head of the reel, the other toward the tail, by means of the screws at the ends. In this way the travel of the material can be increased or retarded. The gears accomplish the opening and closing of the rings. The whole affair turns in the bearings *C*.

Of course the waste is dry, and therefore everything is lively and workable.



*Sifting Waste.*—Under existing circumstances, the best way of obtaining pure fibre is to have the wheat well-conditioned. The first reduction will produce middlings and smaller fibre. The latter product would be again reduced. The coarse fibre is carefully dusted, and again reduced. This is dusted, and either sent direct to the picker room or mixed with the other fibre previously dusted. The limit to the process is the degree of extraction at each successive operation, and may be much longer or shorter.

The machine is intended principally for separating fibre from the most inferior waste products, such as are found beneath the duster, etc. A microscopical examination of a handful of the fibre obtained will usually reveal the presence of particles of cotton, silk, and sometimes many other fibres in combination with the wool.

This is caused by the great variety of material which constitute the main portion of a bale of the stock dusted. The fibre cannot compare with the fine wool fibre in uniformity or regularity of structure, or in any of the essential features which are characteristic of wool as a good textile fabric. Nearly all the fine, delicate scales and serrations so prominent in the pure fibre are lacking.